



Leaders in
microsurgery and
reconstruction

Spring-Summer 2019

IN THIS ISSUE:

- 2** | From the Editor
- 3** | President's Message
- 4** | Annual Meeting
Photo Highlights Begin
- 9** | 2019 ASRM Council
and Committees
- 10** | Future Growth Report
- 11** | Research Committee
Med Student Research
Grant Reports
- 15** | YMG Column
ASRM Calendar
- 17** | International Travel
Grant Reports
- 19** | Women's
Microsurgery Group
WMG ViOptix Travel
Scholarship Report
- 22** | Historian's Corner
- 24** | ASRM New Members
- 25** | Message from the
2020 Program Chair

Reconstructive Microsurgery

THE AMERICAN SOCIETY FOR RECONSTRUCTIVE MICROSURGERY • VOLUME 30.1

What's New in Reconstructive Microsurgery?



Evan Matros, MD
2019 Scientific
Program Chair

The 2019 ASRM Annual Meeting was held at the JW Marriott Desert Springs Resort and Spa from February 2-5. The meeting featured favorite events from previous years, but with a variety of new programming and fresh faces as well. Attendance reached an all-time high of 728 registrants. In the figure you can see the membership and attendance at the meeting continue to grow as the importance of reconstructive microsurgery is recognized and expands into new areas.



Outgoing President Joseph Disa, MD, congratulates incoming President Lawrence Gottlieb, MD

The programming started one day earlier than in the past with the Masters Series. Joan Lipa, in conjunction with the program committee, designed an entirely new format entitled 'The Battle of the Masters'. Two masters described their individual tactic for tackling the same reconstructive problem. The new structure was fun, educational and enabled a fresh approach to the Master Series. We also got to hear from master surgeons

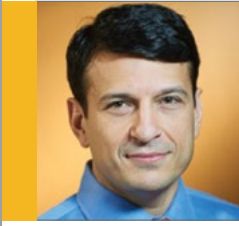
Continued on page 4

A new panel this year, cheekily named the Cagey Veterans' Panel, was stacked with some of the ASRM's most experienced members.



FROM THE EDITOR

Problem Solving and Beyond



Babak J. Mehrara, MD
ASRM Secretary,
RM Editor

Microsurgeons are problem solvers. We are called when our medical colleagues have seemingly exhausted all other options. We are called when patients are frustrated with a vexing wound, disfigured, or simply can no longer do the things they want to do. We are called when patients face difficult decisions and look to us to provide them hope and a way forward. We are the last “general” surgeons; we operate all over the body, on patients of all ages. This is a tremendous privilege and an incredible honor. Every day, when I have a positive effect on a patient’s life, I feel blessed for discovering plastic surgery as a 3rd-year resident, the training I have received, and the opportunity that I have been given.

To continue our leadership as problem solvers, microsurgeons must continue to evolve and innovate. We must continue to advance our field, decrease surgical morbidity, improve outcomes, and refine our techniques. Continuous improvement is needed even in procedures that are seemingly already quite successful. Continuous improvement is why plastic surgeons developed DIEP flaps when muscle-sparing TRAM flaps were so effective. Striving for better outcomes is why microsurgeons developed super-microsurgery, even though microsurgical techniques had already been carefully refined and improved.

The ASRM was established in 1984 with a mission to “promote, encourage, foster, and advance the art and science of microsurgery and complex recon-

struction.” Our goal is to continuously improve and innovate and provide an opportunity for our society to continue its role as indispensable problem solvers. The ASRM aims to develop novel treatments, disseminate this knowledge to the reconstructive community, and to train the next generation of reconstructive microsurgeons. These are ambitious goals; however, because of the dedication of our membership and wise leadership of our governance, our society has been fantastically successful in achieving these goals.

Last year’s meeting, brought to us by our President and my colleague, Dr. Joseph J. Disa and his Program Chair, Dr. Evan Matros, continued the ASRM tradition of excellence. The program was rich in innovative talks, excellent panels, and advancements in all aspects of microsurgery. Dr. Matros’ excellent summary of the scientific program highlights and recap of our 2019 annual meeting begins on the first page of this newsletter.

The next ASRM meeting, to be held in Fort Lauderdale, Florida, January 10-14, 2020, will continue the strong tradition of our society in continuous improvement and innovation. Our president, Dr. Lawrence Gottlieb, and his program chair, Dr. Amir Dorafshar, have assembled an exciting program with scientific sessions covering the wide breadth of reconstructive microsurgery. The theme for the meeting, consistent with our mission of advancing the field of microsurgery is “Excellence Beyond Technique: Thought Process.” For more detail on what is planned, see Dr. Dorafshar’s “Invitation to Attend” on page 25.

We hope you will join us in Florida next year and enjoy this edition of our Newsletter. **RM**

RECONSTRUCTIVE
MICROSURGERY

Spring/Summer 2019

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The mission of the American Society for Reconstructive Microsurgery is to foster excellence and innovation in microsurgery and reconstructive surgery. ASRM upholds the values of Integrity, Collegiality, Scholarship and Innovation.

PRESIDENT'S MESSAGE

Excellence Beyond Technique: Thought Process



**Lawrence Gottlieb,
MD**
ASRM President

As the American Society for Reconstructive Microsurgery (ASRM) has become larger and stronger every year, we are recognized as the premier society for reconstructive microsurgery throughout the world. We now have representation on the American Board of Plastic Surgery (ABPS) Advisory Council, ABPS Director of the Board, Plastic Surgery Foundation (PSF) Research Oversight Committee (ROC) and ASPS CPT RUC committee. In addition, largely due to the persistent efforts of Greg Evans, our past president and delegate to the AMA, we are now official members of the Specialty and Service Society (SSS) caucus in the American Medical Association (AMA) House of Delegates (HOD). This membership, allows us a unique platform for advocacy where so many important policy decisions affecting our profession are made.

As president, the first thing I want to do is formally thank our past president, Joe Disa, and his executive council for their dedication and service to ASRM along with all the leaders and visionaries of our organization for the past 36 years. The highlight of the year, of course, is the annual meeting. Thanks to Evan Matros and his program committee for all of their hard work in organizing the program for last year's meeting. Also, a special thanks to Michael Klebuc and his innovative and successful auction which has helped our Future Growth Fund grow.

Many of the techniques of microsurgery, particularly the microvascular anastomoses, developed by the early pioneers in our field, have become routine. Improvements in microscopes and instruments have continued to make it easier and more reliable to connect smaller and smaller vessels and nerves. Most microsurgeons use couplers on veins, and soon there will likely be something similar for arteries. I suspect, that in the near future, not only will robots with micro-robotic instruments be developed, but, with advanced computer programming, they will successfully connect vessels, nerves and lymphatics. I don't mean to minimize the importance of learning and having good technique, but that is not how we should be defined. Although successful restoration

Continued on page 4



Lawrence Gottlieb MD, addresses the meeting for the first time as President of the ASRM.



Many of the Society's distinguished past presidents enjoying a reunion over breakfast.

"We are now official members of the SSS caucus in the AMA House of Delegates [which] allows us a unique platform for advocacy where so many important policy decisions affecting our profession are made."

PRESIDENT'S MESSAGE

Continued from page 3

of flow in vessels or lymphatics are required for success, it is the thought process, based on principles and concepts as well as our ability to problem solve and innovate that make us great reconstructive surgeons. As engineers develop new devices, we, the reconstructive surgeons, need to continue to problem solve, innovate, and stay true to our principles and concepts without losing focus of the individual needs of our patients. With that, the theme of the 2020 meeting of ASRM will be "Excellence Beyond Technique: Thought Process" with an emphasis on traditional, new, and emerging principles and concepts of reconstructive surgery.

Many thanks to Amir Dorafshar, the 2020 Program Chair, along with his program committee, Liza Wu, chairperson of the Masters series and my executive council. Along with the chairpersons and members of many committees, we all welcome you to join us in Fort Lauderdale for the 2020 Annual Meeting of ASRM. **RM**

2019 ANNUAL MEETING IN REVIEW

MEETING HIGHLIGHTS *Continued from page 1*

in the ASRM/WSRM symposium entitled "Cutting Edge Reconstructive Microsurgery from Around the World: Current Techniques and Future Directions." Drs. Mardini and Koshima put together an all-star ensemble of faculty from around the world.

A variety of topics were addressed in the combined programming and instructional courses with our sister organizations the ASPN and AAHS. These included a panel entitled "Optimizing Perioperative Pain Control in the Opioid Epidemic Era" as well as a panel on "Paradigm Shifts in my Practice" featuring A. Lee Dellon and

Gregory M. Buncke. Extremity and nerve surgery were also featured during the annual Buncke Lecture given by award recipient David C. C. Chuang, who spoke about his extensive experience in brachial plexus injury and reconstruction.

WMG, YMG, and ASLS continued to be showcased throughout the annual ASRM meeting. WMG hosted a luncheon entitled, "Defining Career Success and Preventing Burnout. Aldona Spiegel moderated the session which include a diverse group of panelists. YMG panels included "International Microsurgery: No Borders, No Limits," as well as "Pearls, Pitfalls and Prosecco," moderated by Jason Ko, Summer Hansen and Jeff Kozlow. The annual ASLS panel was moderated by Joe Dayan

Continued on page 5



*2019 Scientific Program Chair
Evan Matros, MD*



*Dr. David C. C. Chuang delivered the
Buncke Lecture.*



Fellow surgeons congratulate Godina Lecturer Dr. Yixin Zhang (fifth from right).



*Dr. Disa presents Yixin Zhang, MD (right)
with a plaque to commemorate giving the
Godina Lecture*

2019 ANNUAL MEETING IN REVIEW



This year's Invited Speaker L. Scott Levin, MD (right) receives a commemorative plaque from Program Chair Evan Matros, MD.



Gordon P. Holt, MD was given special recognition for his innovations and dedication to microsurgery.



The Young Microsurgeons' Group hosted a discussion on eliminating limits and borders in international microsurgery.



Exhibitors at the meeting had a wide variety of tried-and-true and cutting edge products on hand for attendees to try out.



Taking notes during one of the sessions.

MEETING HIGHLIGHTS *Continued*

with emphasis on innovations in lymphatic surgery.

The ASRM program featured old favorites and new topics as well. Best Case/Best Save was once again expertly moderated by Mike Zenn and featured a combination of new and old panelists. The winners this year were Drs. Dong Chul Lee and Yukio Seki. Congratulations! The topic of surgical ergonomics has been popular at past meetings so it was brought back in a different format this year. Gordon Lee presided with guest speakers Susan Hallbeck, David Song, and Scott Hollenbeck.

A special panel was also organized entitled "What I Don't Do Anymore – Fresh Advice from Cagney Veterans." Panelists included the eminent Drs. Lawrence Gottlieb, William Pederson, Joseph Serletti, William Kuzon, and Guenter Germann. The meeting was fortunate to have a special

Continued on page 6

OUTSTANDING PAPER AWARDS:**Stefanos Boukovalas, MD**

The University of Texas M.D. Anderson Cancer Center, Houston

Restoration of Spinopelvic Continuity with the Free Fibula Flap after Limb-Sparing Oncologic Resection

Kathryn J Sawa, BMSc, MD, FRCSC

Utility of Preoperative Imaging in Deep Inferior Epigastric Artery Perforator Flap Breast Reconstruction – a Randomized Controlled Trial

2019 ANNUAL MEETING IN REVIEW

MEETING HIGHLIGHTS *Continued*

presentation by former president L. Scott Levin on the “The Role of Anatomy and Dissection in Microsurgery.” Greg Dumanian also presented a special recognition award to Gordon P. Holt, the original designer of the coupler device which is used ubiquitously.

The meeting theme for the 2019 annual meeting was diversity and inclusivity. This spirit was reflected in the president’s panel on “Diversity of Breast Reconstruction around the Globe”. President Joe Disa put together an international all-star panel which included Yixin Zhang, Moustapha Hamdi, Toni

Zhong, Adeyiza Momoh. Perspectives on breast reconstruction were seen from Europe, North America and Asia. Yixin Zhang also gave an impassioned speech as the annual Godina lecturer and fellow.

The scientific program was a success with over 400 abstract submissions. Research was presented in long format as well as short format in the Science Slam, moderated by Howie Levinson and Patrick Garvey. Outstanding paper awards were given to abstracts entitled, “Utility of Preoperative Imaging in Deep Inferior Epigastric Artery Perforator Flap Breast Reconstruction – a

Randomized Controlled Trial” and “Restoration of Spinopelvic Continuity with the Free Fibula Flap after Limb-Sparing Oncologic Resection.” Additional abstracts were also available for member

Continued on page 7



Sewing with the Masters was a big success.



Taking a break between sessions.



A lot of people enjoyed participating in the Fun Run, a new event added this year.

BEST CASE OF THE YEAR WINNER:

Dong Chul Lee, MD

“1 Toe for 2 Fingers of 3 Defects”

BEST SAVE OF THE YEAR WINNER:

Yukio Seki, MD

“The Vascularized Scapular Bone Growing as a Neo Tibia in Chimeric LD Cross Leg Free Flap for a 20 year old Lady with Severe Osteomyelitis”



Program Chair Evan Matros MD (left) congratulates Dong Chul Lee MD, the winner of the Best Case competition.



Yukio Seki, MD (left) is congratulated for performing the Best Save by the competition’s organizer Mike Zenn, MD.

2019 ANNUAL MEETING IN REVIEW

MEETING HIGHLIGHTS *Continued*

viewing as digital posters. Last but not least, this year's meeting featured the first ever ASRM/ASPN Tail Gate Party. New England fans got to celebrate their Patriots winning a 5th Super Bowl title!

Please mark your calendars for next year's ASRM Annual Meeting, which will be held January 10-14, 2019 in Fort Lauderdale, Florida. **RM**



The Live and Silent Auction event was very entertaining and raised a lot of money for the Future Growth Fund.

Super Bowl Tail Gate Party



WMG Reception



Sewing with the Masters Reception



Godina Alumni Reception



WMG Reception



Godina Alumni: Bernie Lee, MD, David Chang, MD, Ming Huei Cheng, MD and Liza Wu, MD.



The band "Switchblade Nixon" once again rocked the house.

*A special thank you
to these ASRM
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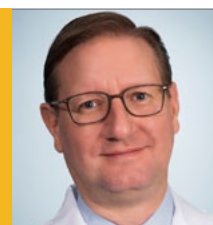
Jason Ko, MD

**COUNCIL MEMBER IN
TRAINING**

Juan L. Rendon, MD

FUTURE GROWTH COMMITTEE REPORT

An Outpouring of Support for Our Mission



Michael Klebuc, MD
Future Growth
Committee

- International Travel Grants
- Medical Student Research Grants
- Lymphatic Education Research Network Joint Grant
- Microsurgery Visiting Educator Program
- Visiting Professor Program

On behalf of the Future Growth Committee and ASRM Council, I would like to sincerely thank all ASRM members who supported the Future Growth Fund Drive. Many of the membership came forward with monetary gifts and donations of auction items while others generously bid for items at both the live and silent auctions. With this incredible outpouring of support a total of \$114,000 was raised. These proceeds will be utilized to support many of the core missions of the ASRM, including:

- ASRM/PSF Combined Pilot Grants
- Medical Student Annual Meeting Scholarships

Thank you again and congratulations to all who participated in this initiative as it strengthens the ASRM and extends the reach of our mission to promote and foster the advancement of microsurgery and complex reconstruction. This fundraising campaign was a positive first step toward the establishment of a fully endowed fund. However, much remains to be done before this goal is fully realized. **RM**

*"Thank you,
ASRM members,
for your incredible
generosity."*



*Fundraiser auction at the
Annual Meeting*



2020
ASRM ANNUAL
MEETING
MARRIOTT HARBOR BEACH | FT. LAUDERDALE, FL
JANUARY 10-14, 2020

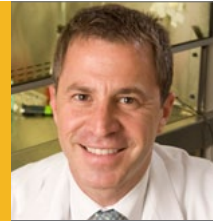


Call for Abstracts!
Submission Deadline / Sunday, July 14, 2019

For submission information, visit www.microsurg.org

RESEARCH COMMITTEE

ASRM 2019 Medical Student Research Grants Awarded



Howard Levinson, MD
Chair, Research Committee

The American Society for Reconstructive Microsurgery (ASRM) recognizes the importance of fostering the development of surgeon scientists and innovative research in microsurgery and reconstructive surgery. The American Society for Reconstructive Microsurgery is committed to investing in the future of microsurgery and developing leaders in microsurgery and reconstruction. The ASRM Medical

Student Research Grant is intended to fund a research project to be completed during the three (3) summer months between a student's first and second year in medical school.

We are proud to announce Scott Echternacht and Hosannah Evie as the recipients of this grant in 2019. Congratulations!

The 2019 Research Committee
Howard Levinson, MD
David Adelman, MD
Babak Mehrara, MD
Tim King, MD
Or Friedman, MD

RM

ASRM 2019 MEDICAL STUDENT RESEARCH GRANT RECIPIENTS

Scott Echternacht
University of Rochester Medical Center

"Investigation of Scar Formation within Nerve Grafts used in Facial Nerve Surgery"

Hosannah Evie
Washington University in St. Louis School of Medicine

"Effects of Clinically-Available Electrical Stimulation Devices on Nerve Regeneration"

RESEARCH GRANT AWARD

Conclusions from Medical Student Research Grant Award Recipients, Part I

THE EFFECTS OF INTRA-OPERATIVE ELECTRICAL STIMULATION ON NERVE REGENERATION ACROSS SHORT ISOGRAFTS IN RATS

Authors: Grace Keane, BS,¹ Deng Pan, BS,² Daniel A. Hunter,² Lauren Schellhardt, BA,² Alison K. Snyder-Warwick, MD,² Amy M. Moore, MD,² Susan E. Mackinnon, MD,² Matthew D. Wood, PhD²

Affiliation: Div. of Plastic Surgery, Dept. of Surgery, Washington University School of Medicine, St. Louis

Despite their regenerative ability, peripheral nerve injuries in humans typically result in minimal functional recovery and debilitating morbidity. Brief electrical stimulation (BES) of peripheral nerves following reconstruction has demonstrated positive outcomes facilitating axon regeneration and functional recovery in animal models. Presently,

the majority of the animal studies on the effects of BES to treat peripheral nerve injuries employ end-to-end repair following nerve transection. In clinical practice, however, nerve grafts are frequently employed to bridge the proximal and distal nerve ends during surgical reconstruction. In this study, we evaluated the impact of BES on axon regeneration and functional recovery following nerve injury with repair using clinically-relevant nerve isografts.

Our experimental design for each of our studies employed the same surgical technique and experimental design: a tibial nerve transection and grafting with 1 cm nerve isograft. Experimental groups also received 1 hr BES at 0.5 mA delivered at the proximal end by Check-point stimulator device. To measure changes in axonal regeneration and cellular repopulation due to BES, we harvested isografts at a 2-week end point and quantified the density of axons and quantity of cells using immu-

Continued on page 12

RESEARCH GRANT AWARD

EFFECTS OF INTRA-OPERATIVE ELECTRICAL STIMULATION ON NERVE REGENERATION...

Continued

nohistochemistry to specific cell markers (Figure 1). Our results concluded that axonal regeneration, measured by density of β -III-tubulin staining, was significantly higher in the mid-graft of the E Stim group as compared to the Control group ($p < 0.05$). No significant differences in axonal regeneration were observed in the distal-graft or distal nerve end, though the data trended in that direction.

Walking track analysis was performed to measure functional recovery. For this assay, a functional index is calculated based on ink prints of the hindpaw on paper recorded during standardized gait. The index is calculated from paw print length, first to fifth toe spread and second to fourth toe spread and has been verified as an indicator of neuromuscular function. In order to account for speed of recovery, we performed walking track analysis at 2 week increments for a total of 21 weeks (Figure 2a). We also employed a post-hoc grid walk analysis as a secondary measure of functional recovery at 21 weeks (Figure 2b).

Motor function recovery, measured as a significant improvement in TFI compared to week 1 TFI values, occurred by 10 weeks in the E Stim group ($p < 0.05$) (Figure 2a). No significant TFI improvement was observed in the Control group.

Continued on page 13

Figure 1. Axon regeneration in 1 cm grafts 2 weeks post operatively.

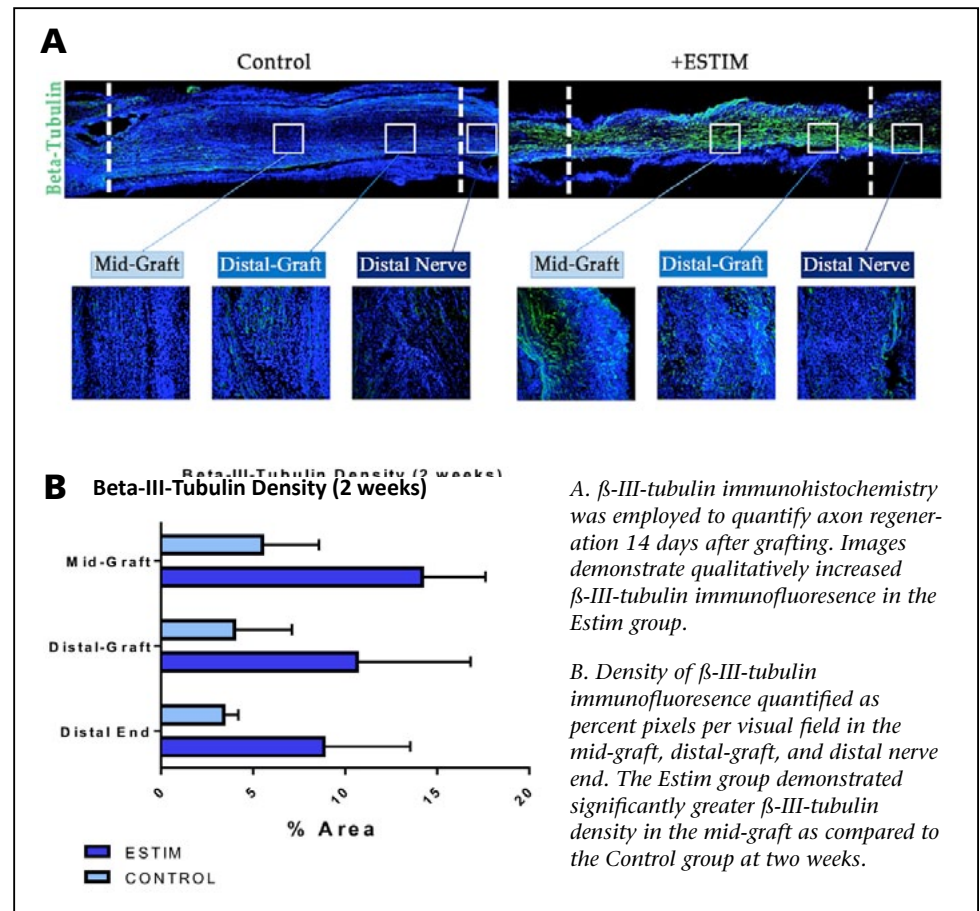
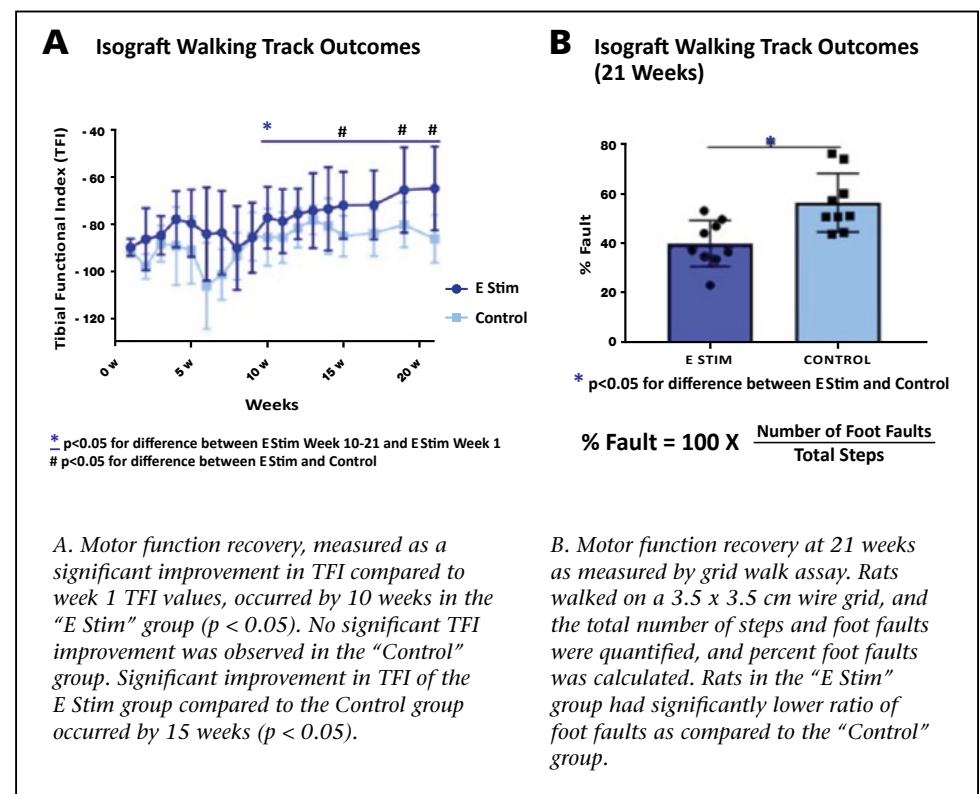


Figure 2. Motor function recovery in 1 cm isografts following BES.



RESEARCH GRANT AWARD

EFFECTS OF INTRA-OPERATIVE ELECTRICAL STIMULATION ON NERVE REGENERATION...

Continued from page 12

We also compared the differences in function recovery between groups. Significant improvement in TFI of the E Stim group compared to the Control group occurred by 15 weeks ($p < 0.05$). Our walking track analysis results were supported by our grid grip assay, which demonstrated that the EStim group faulted significantly fewer times as compared to the Control group (Figure 2b).

The overall purpose of this study was to assess nerve regeneration and functional recovery along different forms of nerve grafts using BES provided by a clinically

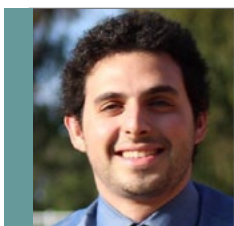
[Our findings] lead us to believe that that there could be a translational benefit of BES following nerve procedures in the clinical setting.

relevant stimulator. In our axonal regeneration studies, we were able to capture the nerves as they were regenerating across the graft by harvesting this nerves at a 2-week endpoint. Our results concluded that BES improves both speed and density of axons within nerve isografts. To assess the effects of BES on nerve graft functional recovery, we performed two assays:

a longitudinal walking track analysis and post-hoc grid walk assay. The results from both of these studies mirrored our axonal regeneration studies nicely, demonstrating that rats that received BES had markedly improved functional recovery scores as compared to the control groups in both assays. Both of these findings together lead us to believe that that there could be a translational benefit of BES following nerve procedures in the clinical setting. Further exploration is required to uncover the mechanism of action that governs these findings. **RM**

Conclusions from Medical Student Research Grant Award Recipients, Part II

MICROSURGICAL INTERVENTIONS TO IMPROVE OUTCOMES IN ERECTILE DYSFUNCTION



Author: Orr Shaul, BS
Primary Investigator: Ketan Patel, MD

Affiliation: Keck School of Medicine of USC

The object of this study was to collaborate between PRS and Urology at Keck Medical Center to introduce new microsurgical treatment options for patients with severe neurogenic erectile dysfunction – either due to surgical intervention (prostatectomy) or secondary to spinal cord injury.

A prospective study was designed for implementation after the groundwork was initially developed through three key projects. These included an anatomic study

for feasibility, a crowd sourcing study to identify patient opinions, and a cost-utility study to determine the systemic costs and the financial viability of these surgeries. We first conducted a retrospective systematic review of novel microsurgical treatment options and associated outcomes in patients with erectile dysfunction (ED). The data revealed compelling evidence in support of microsurgical treatment for ED – namely microvascular arterial bypass penile revascularization surgery (MABS) and cavernous nerve graft reconstruction. Nerve grafts varied – with end-to-side ilioinguinal, genitofemoral, and sural grafts all demonstrating high rates of success. Furthermore, minimally invasive botulinum toxin (BoNT-A) treatment and adipose derived stem cell (ADSC) therapy have both shown extreme promise in rat models; with BoNT-A treatment entering phase two human clinical trials this year.

The study concluded that surgical options for ED may all benefit from involvement of a microsurgeon.

Continued on page 14

RESEARCH GRANT AWARD

MICROSURGICAL INTERVENTIONS TO IMPROVE OUTCOMES IN ERECTILE DYSFUNCTION

Continued from page 13

Microsurgeons are trained in small vessel anastomosis, as well as nerve transfers and reconstructions, and many of the surgical methods investigated in this review are microsurgical interventions that demonstrate high rates of success in patients with neurogenic or vasculogenic ED. As such, microsurgeons are uniquely trained and positioned to be of value to ED treatment and there is no doubt the combination of Urological and Plastic and Reconstructive Surgical teams will prove to be a potent force in the surgical management of erectile dysfunction.

We conducted a follow-up anatomic study to better identify the anatomy of the perineum and pelvis and assess the viability of target donor sites in autologous nerve transfer surgery for the treatment of ED. Through the results of our retrospective study, we found that the use of ilioinguinal, iliohypogastric, genitofemoral, sciatic, and femoral end-to-side nerve transfers have all been reported in the literature to successfully correct neurogenic erectile dysfunction. However, little is known about the anatomic variations in size, length, fascicle distribution, and topography of these nerves. The goal of our cadaveric study was thus to identify structural, topographic, and distributional variations in humans of the nerves in question to gain a better understanding of various surgical options of end-to-side neurorrhaphy that may be potentially available to patients with ED.

Preliminary results of our study found that there is very little variation among these nerves – with most (ilioinguinal, iliohypogastric, genitofemoral) approximately 7 centimeters in length in the perineum, and 0.7-1.2 millimeters in diameter. In addition, we found that the dorsal penile nerve was approximately 1.2-1.5 millimeters in diameter, with significant variation in branching architecture across specimens. This provides the surgeon with many unique options

The utility data derived from this study allowed us to conduct a cost-utility analysis comparing surgical treatment to non-surgical treatment of ED. Baseline analysis in this study revealed an incremental cost-utility ratio of \$(1,428.00) in favor of surgical intervention. The cost of lifetime medical therapy was \$15,488.28 greater than that of surgery even when adjusted for inflation. Furthermore, surgery provided patients with a quality-adjusted life-year gain of

	Genitofemoral Nerve	Ilioinguinal Nerve
Mean Diameter	1.8mm (SD = 0.6mm)	0.9mm (SD = 0.2mm)
Mean Distance (to the dorsal nerve of the penis)	8.0cm (SD = 1.0cm)	8.0cm (SD = 1.7cm)
Mean Distance (to the prostatic plexus)	6.6cm (SD = 1.9cm)	5.7cm (SD = 0.7cm)
Mean # Sensory Branches Identified	1.0	0.7

Table 1. Summary of the genitofemoral and ilioinguinal nerves in relation to the dorsal nerve of the penis and prostatic plexus.

for end-to-end nerve graft in the case of sensory deficits of the penis. Further results demonstrate that the genitofemoral nerve may be the most suited for neurorrhaphy in the case of parasympathetic dysfunction.

Results of our crowd-sourcing study revealed that approximately one third of the young male population is now reporting some level of erectile dysfunction, with an overall prevalence of 35% across the study. Utility data indicates that many men undergoing non-surgical therapy for ED are unhappy with their current medical treatment yet are willing to consider surgical interventions. As such, novel interventions must become more accessible to patients and presented as realistic options for their treatment.

10.77 years greater than medical treatment. It follows that surgical interventions for erectile dysfunction represent a significant cost savings to society compared to non-surgical treatment. PDE5 inhibitors offered the greatest cost with the least clinical benefit. The conclusion of this study suggests that patients on medical therapy may benefit most from novel surgical interventions.

Finally, we have begun looking to recruit patients for a prospective study. An ED-EQoL and IIEF-5 questionnaire was written and adapted for this study, allowing us to hit the ground running once we finalize the recruitment of a small cohort of patients. **RM**

YOUNG MICROSURGEONS' GROUP

On the Shoulders of Giants



Jason Ko, MD, MBA
Chair, Young
Microsurgeons' Group

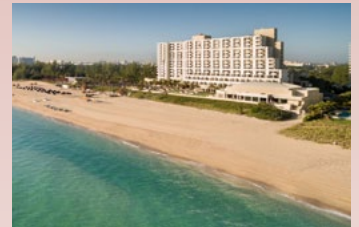
As I begin my term as the Chair of the Young Microsurgeons' Group (YMG), I am humbled and honored as I think of all of the phenomenal Chairs before me and what they were able to accomplish during their time as YMG Chair. Hopefully, I will be able to follow in their footsteps and continue to promote the tremendous growth and development that we have seen in the YMG over the past few years. The YMG is a wonderful community that allows young microsurgeons from all over the world to provide support, share experiences, and network with one another, while also giving us a voice within the larger ASRM membership. As the younger generation of microsurgeons, the YMG stands on the shoulders of the microsurgery giants that have come before us, and it is important for us to work together to help shape the future of the ASRM.

The YMG had a strong presence at this past year's annual meeting in Palm Desert—thanks to the leadership of last year's YMG Chair, Dr. Ed Chang. This past year's two YMG sessions were well-received with some of the highest attendance rates we have seen for YMG sessions. Our international YMG Panel, "No Borders, No Limits," which highlighted our young colleagues from abroad, coincided with the annual theme of inclusivity and truly embodied the sentiment of the meeting while allowing many of our young international members to showcase their challenging cases. The YMG Forum, which was appropriately titled, "Pearls, Pitfalls, and Prosecco," provided a setting that mirrored the "Best Case, Best Save" (which is the highlight of each ASRM Annual Meeting) but only involved YMG members—again demonstrating that the future of the field and of our society lies with the young members that have been inspired by our senior ASRM members

Continued on page 16



YMG Roundtable Session panel

FUTURE ASRM
MEETING
CALENDAR

JANUARY 10-14, 2020

ASRM 35TH ANNUAL MEETING

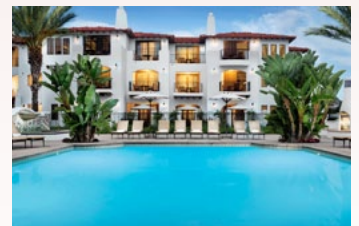
Marriott Harbor Beach
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JANUARY 15 – 19, 2021

2021 ANNUAL MEETING

Grand Hyatt Kauai Resort
and Spa
Koloa, Kauai, Hawaii



JANUARY 14-18, 2022

2022 ANNUAL MEETING

Omni La Costa Resort
and Spa
Carlsbad, California

JANUARY 20-24, 2023

2023 ANNUAL MEETING

JW Marriott Turnberry
Resort and Spa
Aventura, Florida

YOUNG MICROSURGEONS' GROUP

Continued from page 15

and leadership, and the future is bright! With the gracious sponsorship from Spectros Corporation for this forum, the YMG provided an educational and entertaining session that will hopefully continue to be an annual session for years to come.

One session that will undoubtedly endure as a recurring session at the ASRM Meeting is the Microsurgery Fellowship Roundtable, which was an open and honest discussion for each microsurgery program to answer questions from potential trainees and students who hope to pursue a career in microsurgery. With the highest number of registrants for the entire meeting after "Best Case, Best Save," we unfortunately had to turn away

potential attendees. Hopefully, this will not be an issue for the upcoming year's meeting, since we plan to expand this session and streamline its content.

As the younger members of the ASRM, the YMG has also been tasked with helping to maximize the ASRM's presence on social media. We will use Instagram, Facebook, and Twitter to highlight ASRM and YMG events and announcements to reach a broader audience both nationally and internationally. We will definitely need help from the ASRM and YMG membership with our social media efforts, since we will be more successful at reaching a broader audience if we work together on this.

As I look forward to the upcoming year, I am fortunate to have an amazing team of innovative and energetic young microsurgeons to work with on the YMG Committee, and with the full support of ASRM President, Dr. Lawrence Gottlieb, and Annual Meeting Program Chair, Dr. Amir Dorafshar – who are both committed to increasing the YMG presence at the upcoming ASRM Annual Meeting – the YMG has exciting sessions and events in store for this year. If you would like to get involved with the YMG or have any questions/suggestions, please feel free to contact me at Jason.ko@nm.org. See you all in Florida! **RM**



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NOW ACCEPTING ABSTRACT SUBMISSIONS

2019 ANNUAL MEETING: INTERNATIONAL TRAVEL GRANT RECIPIENTS

The 2019 Meeting Through the Eyes of the International Travel Grant Recipients



Dr. Morsy arriving at the annual meeting in Palm Desert, California, energized and ready to go!

MOHAMED MORSY, MD

*Consultant, Assiut University Hospital
Assiut, Egypt*

It was a great pleasure and honor for me to receive the ASRM International Travel Grant award for 2019. Although it was not my first time at an ASRM meeting, as I have previously attended during my stay in the US, but it was the first time I came to it after I went back home to Egypt. This ASRM meeting still fascinated me just as much as it did the first time. I believe it delivers top notch scientific content and updates on all aspects of reconstructive microsurgery.

The 2019 meeting was the perfect meeting, starting with the venue amongst the beautiful palm trees, and continuing all the way through the loaded schedule that was really hard to skip anything from, including great research papers and posters, instructional courses, panels, and of course my favorite session “Best Case/Best Save”, which was exceptional as usual. It was amazing meeting with the giants of reconstructive surgery and discussing with them ideas and concerns. Last but not least there was catching up with friends and colleagues, brainstorming new ideas and having fun.

Continued on page 18

ZOLTAN KLARIK, MD, PHD

*Multidisciplinary Center of Head and Neck
Cancer, National Institute of Oncology
Budapest, Hungary*

First of all, I would like to thank the American Society for Reconstructive Microsurgery Grant Committee for the International Travel Grant that allowed me to be a part of such an incredible event. It is a great way to help young surgeons from around the world who have limited resources and want to participate in such a top meeting and academic program.

It is by far, one of the best meetings I have ever had the pleasure to attend. I had such an amazing time being able to share experiences with the best microsurgeons from all around the world. They were not only approachable but

also dedicated to presenting their most successful results and efforts in cases that, in more than one way, completely defied the odds.

I really enjoyed and took away some very useful tips from the “Sewing with the Masters” series, which introduced me to the techniques of different surgeons and made it easy to share knowledge by interacting with one another. Watching the “Best Case/Best Save” presentation, I felt an outstanding admiration not only for



Interacting with different surgeons in the Sewing With the Masters session was one of Dr. Klarik's many highlights of attending the meeting.

Continued on page 18

2019 ANNUAL MEETING: INTERNATIONAL TRAVEL GRANT RECIPIENTS

DR. MORSY *Continued from page 17*

Coming to the meeting this year gave me the opportunity to present my work. I had two e-posters to present in this year's meeting and it was such a privilege to be able to come for them.

I would like to thank the ASRM grant committee for giving me such an incredible opportunity. I consider the annual ASRM meeting to be the best meeting in reconstructive microsurgery and I will strive to attend it in the future as much as I'm able. **RM**



Dr. Morsy presenting his work in person during the e-Poster session.



Hard to beat the beautiful setting at the JW Marriott resort! It was really great visiting with old friends and meeting other microsurgeons from around the world.

DR. KLARIK *Continued from page 17*

the wisdom shared by all of the panelists but especially for the women microsurgeons who made presentations. I really related to all the struggles shared, and came to realize that with dedication, effort and the courage to never give up, we are unstoppable.

I definitely think this has shifted the way I thought about microsurgery and opened my eyes to new horizons. I really appreciate the amazing opportunity given and hope we'll see each other again very soon.

Thank you so much!

RM

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Join the ASRM members only Facebook group TODAY.
WHY?

- Share ideas and news relevant to the ASRM community.
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WOMEN'S MICROSURGERY GROUP

Expanding Outreach on Social Media



Aldona J. Spiegel, MD
Chair, Women's
Microsurgery Group

The Women's Microsurgery Group (WMG) had a very exciting meeting this year in Palm Desert. We generated new ideas and initiatives for the upcoming year. New members Heather Erhardt and Carolyn De La Cruz were welcomed, and Joan Lipa generously agreed to continue helping us with words of wisdom as the Ex Officio Chair. New initiatives include increasing the WMG membership and building a true community. All active ASRM members, Candidates for ASRM membership, Plastic Surgery Residents and Fellows will be eligible. On the horizon, a biannual WMG newsletter to increase awareness and communication, an updated WMG webpage, WMG Instagram to engage residents and fellows, a WMG Facebook Group was approved and a formalized WMG membership will be developed. The WMG group is considering a pre-meeting retreat before the 2020 meeting in Florida. Save the date to come!

The WMG Luncheon entitled "Defining Career Success and Preventing Burnout" was well received and well attended. We had a fantastic panel on this important topic, and we learned so much from each other, benefitting from an international perspective. Our panelists were Dr. Sinikka Suominen (Finland), Dr. Maria Siemonov (Chicago), Dr. Stefania Tuinder (Netherlands), Dr. Julie Park (Galveston) and Dr. Joan Lipa (Canada).

We had a stimulating ASRM Panel on "Reinventing Yourself," presented by Drs. Michael Zenn, Ed Ray, Loree Kallianinen, and Melissa Poh. Dr.

Summer Hanson and I moderated the panel. We learned about the ins and outs of working with industry, the rewards and challenges of re-entering academic practice, the adventures of taking a locum in another country, and the exciting road of developing a new program.

Integra LifeScience continued their generous contribution supporting the WMG reception prior to the ASRM celebration. All attendees and their families were welcome, allowing us a great opportunity to network with colleagues, connect with friends, welcome new members, and foster new interest in our group.



Members and panelists at the WMG Luncheon (left to right): Carolyn De La Cruz MD, Joan Lipa, MD, Aldona Spiegel MD, Stephanie Caterson MD, and Summer Hanson MD.

ViOptix generously funds two WMG travel scholarships, covering travel and expenses for the recipients in order to attend the ASRM meeting and participate in the WMG. The scholarship has been instrumental in furthering interest in reconstructive microsurgery in women who are planning or pursuing a career in plastic surgery. We are

"On the horizon for development are a biannual WMG newsletter, an updated WMG webpage, WMG Instagram, and a WMG Facebook group."

Continued on page 20

WOMEN'S MICROSURGERY GROUP

Continued from page 19

fortunate and excited that interest in both the ASRM and the WMG has significantly increased and we have received many excellent applications. The 2019 Resident/Fellow scholarship was awarded to Dr. Christina Vargas of the Case Western Reserve University in Cleveland, Ohio, and the medical student scholarship awardee was Ms. Cara Black of Georgetown University School of Medicine in Washington, D.C.

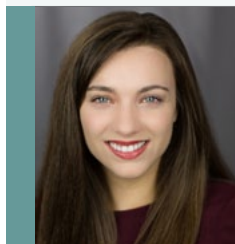


The WMG Reception gave members a chance to enjoy some down time with colleagues.

The WMG Mentorship Program recognizes the importance of developing a strong foundation and continues to strengthen with improved matching criteria, connecting Mentees with Mentors that possess the qualities the Mentees are most interested in. The program has not only been successful but has demonstrated the value of creating lasting and effective relationships between Mentee and Mentor.

If you would like to become a mentor, mentee, or get more information, please check out our webpage: www.microsurg.org/ WMG. **RM**

Reflections from a WMG ViOptix Travel Scholarship Winner



*By Cara Black
MD Candidate*

I had an absolutely fantastic time this winter at the

2019 ASRM Annual Meeting as a winner of the Women's Microsurgery Group (WMG) ViOptix Travel Scholarship! This was a great honor and provided me with many opportunities for learning and networking amongst aspiring and current microsurgeons. Thank you for the opportunity to reflect on my experience.

I was humbled to meet the wonderful women in WMG at the reception and group panels. WMG is composed of talented female microsurgeons who value passing their knowledge and compassion onto other aspiring microsurgeons as part of their legacy in plastic surgery. Meeting the many professors, leaders of professional organizations, and innovative researchers in WMG was inspiring and provided me with tangible role models to emulate in the field. This year's "Defining Career Success and Preventing Burnout" panel allowed me to gain wisdom and tools to make tough choices when prioritizing between career, family, and hobbies.

The theme of each WMG event was mentorship. Mentorship has always been something that is very important to me. As a

former Teach For America 12th grade physics teacher at an all-girls' school in Chicago, I was a mentor to many young women, some after school nearly daily as they progressed through the college admission process. The core value that drove me as a teacher was encouraging women to pursue science, medicine, and engineering. At this stage in my training as a medical student pursuing a career in microsurgery, I am now the seeker of mentorship and guidance rather than the provider. I am very grateful to have been given the gift of a mentor from within the WMG, Dr. Aldona Spiegel. Her mentorship will help me to develop the best version of my professional self by guiding me through important career decisions and providing valuable networking connections. I am also blessed with mentors at my own institution, Drs. Kenneth

Continued on page 21



Cara Black, medical student at Georgetown University School of Medicine (right), meets her new WMG mentor Dr. Aldona Spiegel (left), at the Women's Microsurgery Group Reception.

WOMEN'S MICROSURGERY GROUP

REFLECTIONS OF A TRAVEL FELLOWSHIP WINNER

Continued from page 20

Fan, Karen Kim Evans, and David Song who have been invaluable to me as helpful and caring advisers.

In addition to attending the WMG panels and events, I also sat in on many engaging lectures at ASRM. The "Battle of the Masters" event, where master microsurgeons compared approaches to reconstructive problems, was highly educational and entertaining. The surgeons battled the profunda artery perforator (PAP) vs. diagonal upper gracilis (DUG) flap for breast reconstruction, groin lymph node transfer vs. laparoscopic omentum transfer, female-to-male radial forearm vs. anterolateral



Learning microsurgical techniques in a Sewing with the Masters session with Dr. Theodore Kung.



Flamingos taking a dip at the JW Marriott.

thigh (ALT) flap, male-to-female penile inversion vs. intestinal vaginoplasty, digit amputation vs. salvage, and others. Comparing two surgical approaches helped me to understand details of the individual procedures themselves. I also often found myself laughing out loud during the fun comradery and passionate discourse between surgeons in this session.

At the "Sewing with the Masters" sessions, I learned microsurgical skills with Dr. Theodore Kung and was fascinated with the precise and careful techniques. I also had the opportunity to learn about "Surgical Ergonomics" from Drs. Gordon Lee, David Song and Scott Hollenbeck. This was a fantastic lecture because I learned valuable operating room stretches and important self-care advice. Another session highlight was the "Best Case/Best Save." The cases presented here solidified my passion for pursuing a career in microsurgery because the surgeons presenting these cases helped their patients in so many life-changing ways. A few of my favorites were scalp reconstruction after a factory accident scalp avulsion by Dr. Joan Lipa, face and scalp reconstruction after a severe dog bite using various flaps by Dr. Frederic Deleyannis, and simultaneous abdominal wall and small bowel transplant by Dr. Detlev Erdmann. I was impressed by the challenging nature of these fascinating cases.

Another notable experience at the meeting was hearing the story about Dr. Gordon Holt's role in the development of the venous coupler device when he was a

fourth-year medical student. This was especially inspiring to me because I am currently on a plastic surgery research year and will be pursuing a career in academic plastic surgery. It was inspiring to hear a story of how a medical student can help to advance the field in impactful ways through hard work in research.



Cara with annual meeting special honoree Dr. Gordon Holt.

After attending the lectures and networking events, I was able to enjoy the beautiful location of the meeting – the JW Marriott in Desert Springs, California. I saw the magnificent birds around the resort including flamingos, hawks, and parrots and enjoyed the beautiful spa and pool. I would like to extend my deepest gratitude to Dr. Spiegel and the rest of WMG, Dr. Joseph Disa and ASRM, ViOptix, and everyone that I met at the conference for such a fantastic and inspiring learning opportunity. **RM**

Cara Black
MD Candidate, Class of 2020,
Georgetown University School
of Medicine

HISTORIAN'S CORNER

The Origins of Microvascular Surgery



Matthew M. Hanasono, MD
ASRM Historian

Microsurgery is a term that refers to surgery performed with the assistance of an operating microscope. Otolaryngologists were actually the first surgeons to use microsurgical techniques and it was the Swedish otolaryngologist, Carl-Olof Siggesson Nylén, who built the first surgical microscope at the University of Stockholm in 1921.¹ This was a monocular microscope (a modification of a scope made by Brinell-Leitz) and was used first on animals then on a patient with chronic otitis who had a labyrinthine fistula. This microscope was soon replaced with a binocular Zeiss microscope by Nylén's chief, Gunnar Holmgren,² head of the University Clinic of Stockholm, who recognized the value of magnification for a variety of middle ear surgeries. Today, microsurgical techniques are routinely utilized by many surgical subspecial-



Swedish otolaryngologist, Carl-Olof Siggesson Nylén built the first surgical microscope in 1921. †

ties; otolaryngologists continue to perform microsurgery on the inner and middle ear as well as on the larynx, ophthalmologists perform microsurgery to treat glaucoma and perform cataract and corneal surgery, neurosurgeons perform microsurgery for a vast array of procedures on the brain, spinal cord, and peripheral nerves, and plastic surgeons, among several other subspecialist surgeons, perform microsurgery for nerve repair, replantation, and free tissue transfer, to name a few examples.

Microvascular surgery on the other hand can also trace its origins to vascular surgery. John B. Murphy³ reported a successful end-to-end anastomosis of the femoral artery by invagination of vessels with silk suture in 1897. Alexis Carrel,^{4,5} described the triangulation method for vascular anastomosis in 1902. Carrel and Charles Claude Guthrie then built on this describing numerous vascular techniques as well as performing the first composite tissue transfer involving using canine intestine for the reconstruction of the cervical esophagus. Carrel would go on to win the Nobel Prize in 1912 for his pioneering work. While Carrel laid the groundwork for the development of microvascular reconstruction, it was the vascular surgeon Julius H. Jacobson II who was first to use a microscope to repair blood vessels in 1960 at the

Continued on page 23

"The successful transplantation of a block of composite tissue by reanastomosing the microvascular pedicle has untold experimental and clinical possibilities."

— Harry J. Buncke, Jr.



The Nobel Prize in Physiology or Medicine 1912 was awarded to Alexis Carrel "in recognition of his work on vascular suture and the transplantation of blood vessels and organs." ††

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HISTORIAN'S CORNER

ORIGINS OF MICROVASCULAR SURGERY *Continued from page 22*

University of Vermont. Jacobson and Suarez⁶ introduced the diploscope, a stereoscopic microscope for simultaneous use by two surgeons. They used this device to perform anastomoses of vessels as small as 1 mm in diameter.

The first clinical microvascular surgeries were in replantation. Robert Malt and Charles McKhann⁷ performed the first successful microvascular replantation of an upper extremity in a 12-year-old boy in 1962. Hand surgeons at the University of Louisville, Harold Kleinert and Mort Kasdan,⁸ performed the first revascularization of a partial digital amputation in 1964. Shigeo Komatsu and Susumu Tamai⁹ performed the first complete thumb replantation in 1965 in Japan at Nara Medical University, repairing two volar arteries and two dorsal veins under a Zeiss diploscope. The first human microsurgical transfer of the second toe to thumb was

performed in 1966 by Dong-Yue Yang and Yu-Dong Gu¹⁰ in Shanghai, China. The first great toe to thumb transfer was performed in 1968 by John Cobbett¹¹ in England

Tom Krizek¹² and colleagues reported the first experimental microvascular free flaps were based on the superficial epigastric vessels in dogs in 1965. NH Antia and VI Buch¹³ performed the first clinical microvascular free flap in Bombay (now Mumbai), India but this wasn't reported until 1971.



In 1964, Harold Kleinert, MD (with Mort Kasdan, MD) performed the first revascularization of a partial digital amputation.⁸

This was a dermal-fat flap from the groin for facial reconstruction and was complicated by infection and necrosis. Donald McLean and Harry Buncke Jr.¹⁴ performed the first fully successful microvascular free flap in 1970, an omental free flap used for scalp reconstruction in which the left gastroepiploic vessels were anastomosed to the superficial temporal vessels. In 1973, Rollin

Daniel (who later performed the first free flap at my institution, MD Anderson Cancer Center) and Ian

Taylor¹⁵ reported successful transfer of a cutaneous iliofemoral island (groin) flap for lower extremity reconstruction.

The rest is, as they say, history. Actually, ASRM Historian A. Lee Dellon takes over telling the story in the 2012 Spring/Summer issue of *Reconstructive Microsurgery* and I continue his work in the 2018 Spring/Summer issue. In researching this article, besides Google, I found Donald Serafin's¹⁶ article in *PRS* published in 1980 enlightening and inspiring. Of particular interest is that he not only discusses the past but predicted the development of composite tissue allotransplantation, targeted cancer therapy, gene therapy, and stem cell therapy, as well as the decline, even the demise, of surgery and microsurgery in the future. I also recommend Susumu Tamai's¹⁷ article published in 2009 in *PRS* as the most comprehensive and well researched paper on the history of microsurgery. **RM**

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†† The Nobel Prize in Physiology or Medicine 1912. NobelPrize.org. Nobel Media AB 2019. Fri. 24 May 2019. <<https://www.nobelprize.org/prizes/medicine/1912/summary/>>

§ <http://www.kleinertkutz.com/history.html>



2018-2019 New Members

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Alperovich, Michael
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Binhammer, Paul
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Champaign, IL

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Ghali, Shadi
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RM

A MESSAGE FROM THE 2020 PROGRAM CHAIR

Dear friends and colleagues



**Amir H. Dorafshar,
MD, FACS, FAAP**
2020 Scientific
Program Chair

On behalf of your president Dr. Larry Gottlieb, I would like to extend an early invitation for you to join us at the 2020 Annual Meeting for the ASRM at the Marriott Harbor Beach Resort & Spa in Fort Lauderdale, Florida. The theme of this year's meeting will be "Excellence Beyond Technique: Thought Process."

On Friday, all members are invited to attend the popular ASRM/WSRM symposium, to be moderated by Dr. David Chang. The YMG New Member Reception will now immediately follow the YMG Round Table Discussion to improve networking opportunities and help kick off Friday night's festivities.

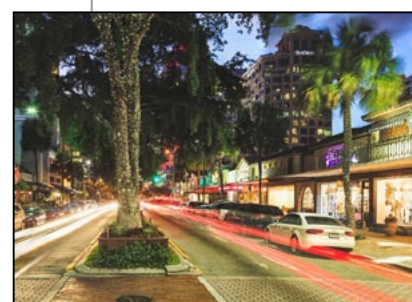
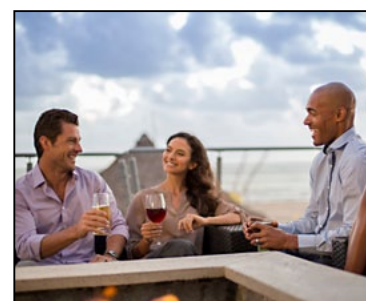
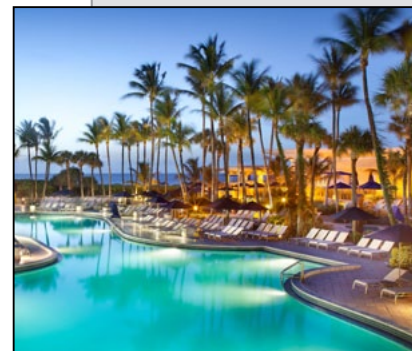
Working in combination with our colleagues from the AAHS and the ASPN, we have developed an incredible joint program on Saturday that covers relevant topics of today including, "Surgeon Wellness: Protecting Your Body and Career," "Social Media and Imaging: Strategies to Keep You and Your Patients Safe," and "When Bad Things Happen to Good People." In partnership with the ASPN, on Sunday we have planned hot topic discussions on "Gender Affirmation Surgery Reconstruction Challenges of Function and Sensation" and "Difficult Cases of Facial Paralysis – Opportunities and Innovations." The ASRM will also include an invitation for our guest nation of Israel to highlight the development of reconstructive surgery in that country.

Beginning with this meeting, we are opening up the Master Series in Microsurgery to all Society members at no additional cost. This will be led by our own master surgeon, Dr. Liza Wu, with the theme, "Think Big, Act Small: The Building Blocks of Any Successful Practice." We plan to illustrate the series with case-heavy panels interspersed with video-focused TED-style talks to discuss clinical and programmatic development. Finally, we will continue the breakout programs in conjunction with the American Society for Lymphatic Surgery and hear updates from the American Society for Reconstructive Transplantation.

The program committee has worked tirelessly to develop an exciting series of panel discussions on a wide range of topics that cover the entire breadth of reconstructive surgery. The emphasis of the panels will be on the importance of the critical thought process when developing solutions to complex reconstructive challenges. We are hoping to go back to the roots of the Society by encouraging lively interactive debate between panel members and with the audience.

For family members, Fort Lauderdale offers recreation for a wide range of ages and interests, such as relaxing at the Fort Lauderdale Beach Park, going on an Everglades adventure, helping fire cannons on a mock pirate ship cruise, exploring the Museum of Discovery and Science with IMAX, shopping, golfing, off-shore fishing, and so much more.

The 2020 meeting promises to be comprehensive, thought provoking, and utterly enjoyable. We hope you will come join us in sunny Florida! **RM**



The Marriott Harbor Beach Resort & Spa offers a wide variety of activities, from lounging by the serene lagoons and patios to area attractions and fun at the beach.

Photos credit: <https://www.marriott.com/hotels/hotel-photos/fllsb-fort-lauderdale-marriott-harbor-beach-resort-and-spa/>